We claim:

1. A system for statistical-multiplexing of bit stream data under control of human operator, said system having a statistical distribution of average rates, said system comprising:

5   a plurality of bit stream encoders arranged in groups, each of said groups having a different bit rate range for compression of content for transmission over an electronic network, each encoder having an assigned priority for processing said bit stream data;

     a control computer configured to receive as input, the resulting current quality of content relative to output bit-streams of said plurality of encoders, and configured to send 10   as output, the calculated desired bit-rates for said plurality of encoders; and

     a plurality of cascaded multiplexers coupled via an electronic network to receive from said control computer a scanning array for storing the results of monitoring said output bit streams,

     said control computer being programmed to control said plurality of bit stream 15   encoders, thereby defining the relative quality of the output of said plurality of encoders.

2. The system of claim 1, wherein a desired distribution of the average bit stream rates among said plurality of encoders is fixed in alignment with said priorities, as determined by said scanning array of said plurality of cascaded multiplexers.

20

3. The system of claim 1, wherein said scanning array of said plurality of cascaded multiplexers is fixed in alignment according to a desired distribution of the average bit stream rates among said plurality of encoders.

25   4. The system of claim 1, wherein a desired distribution of the average bit stream rates among said plurality of encoders and in relation to said scanning array of said plurality of cascaded multiplexers are fixed in alignment with each other.

5. The system of claim 1, wherein a desired distribution of the average bit stream rates 30   among said plurality of encoders is kept for a pre-defined time interval.

6. The system of claim 1, wherein the bit stream rates vary within limits defined by a criterion of alignment of a desired distribution of the average bit stream rates among said plurality of encoders and in relation to said scanning array of said plurality of cascaded 35   multiplexers, whereby said limits determine available ranges of bit rates.

7. The system of claim 6, wherein each of said plurality of encoders is used for encoding content, and wherein said available variation of bit stream rates for each of said plurality of encoders is defined according to the relative quality of said content among said 40   plurality of encoders, said relative quality being defined by said assigned priorities.

8. The system of claim 1, wherein said electronic network is the Internet.

9. A method for statistical-multiplexing of the output bit stream data of a plurality of encoders arranged in groups, wherein the bit rate and the quality of content of said bit stream data is transmitted over an electronic network between a control computer and said plurality of encoders, and said bit stream data is multiplexed by plurality of cascaded multiplexers, wherein the interface for setup parameters, of said plurality of encoders and said plurality of cascaded multiplexers is under the control of a human operator via said control computer, said bit stream data having a statistical distribution of current rates, and said method comprising:

    monitoring said output bit streams;

    providing control information by said human operator by assigning priorities to said plurality of encoders, limitations of availabilities and scanning arrays, said scanning arrays storing the results of monitoring said output bit streams;

    calculating optimal values comprising:

        distribution of bit rates based on any previous transmission; and

        available ranges of bit rates for said plurality of encoders and optimal scanning arrays for said plurality of cascaded multiplexers;

    receiving of said bit rates from each of said encoders via said electronic network from said control computer;

    achieving a resultant desired quality of said content by each of said encoders, based on said desired bit rate;

    receiving as input by said control computer, via said electronic network, from said plurality of encoders, said input comprising information about the current quality of said content concerning the output of said plurality of encoders;

    sending output from said control computer via said electronic network to said plurality of encoders, said output carrying feedback information about said desired bit-rates;

    sending operator input information about said plurality of encoders' limitations and priorities as defined by said operator;

    providing feedback information to said operator comprising:

        the optimal ranges of said desired bit rates for each of said plurality of encoders; and

        said optimal scanning arrays of said plurality of cascaded multiplexers, as calculated by an interactive algorithm for said priorities, limitations and scanning arrays;

    passing feedback information from said interactive algorithm to said algorithm for the optimal distribution of said bit-rates; and

    passing computer information about said scanning arrays to said plurality of cascaded multiplexers,

such that said output bit stream is optimized by having aligned said content of said bit stream with said priorities of said inputs of said plurality of cascaded multiplexers, and thereby varying said plurality of encoders' bit rate availabilities as functions of said plurality of encoders' output bit rates, aligned with said priorities of said plurality of cascaded multiplexer'sinputs.

10. The method of claim 9, wherein each of said cascaded multiplexers has its own associated scanning array.

11. The method of claim 9, wherein said plurality of encoders are separated into at least two groups, wherein each group has an associated optimal available range of bit rates for an associated priority.

5

10